Stealth Defeat by Precision Timing Measurement of Extreme-Distance Coulomb Effects

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Simon Edwards
Research Acceleration Initiative

Introduction

As precision-timing mechanisms continue to enjoy greater and greater degrees of accuracy, questions have been raised as to whether there are any practical applications for these ever-increasing levels of accuracy. One potential application lies in utilizing precision timing in order to defeat some types of EM-absorbing stealth.

Abstract

Although Coulomb (electroweak) effects are generally accepted to be projected only over extremely short distances, I propose that Coulomb effects may be translated through a coherent beam of electromagnetism back to the source of the electromagnetism. These effects, although extremely subtle at distances of hundreds of miles, could be sufficient to affect the velocity of light near the source of the emission.

Rather than relying upon RADAR returns, this approach would depend upon the accumulation of electricity in RADAR-absorbing materials in the integument of an aircraft. In the event that a focused beam of electromagnetism interacts with such an integument, it could be expected that a surplus of electrical energy would transiently exist within that integument. This concentration of electrons would push back against photons associated with the EM beam and these photons would push back against others in aft portions of the beam.

Although the magnetic effects of light are negligible, photons have sufficient electroweak effects to be able to influence aligned photons over some distance, even if to an extremely subtle degree. The closer the photons are to one another in the aligned series, the greater the effects at distance.

Thus, if we emit electomagnetism and measure the length of time it takes for individual pulses to arrive at a secondary aperture and how this changes over time, and this optically-transparent aperture is doped with semiconductors which allow it to make a temporal measurement, we may, with a sufficiently precise atomic clock, measure these effects.

If we imagine the EM beam as a solid rod composed of a material such as metal, what we are doing is measuring, for one thing, how long it takes to receive some feedback when that rod bumps into something. This feedback travels at the speed of light just as does a RADAR return, but it is not a RADAR return in any traditional sense. The effect which underpins this feedback nonetheless informs us as to how far away a stealthy aircraft is and we can emit directed beams in a multitude of directions in order to establish the bearing of the aircraft. This length it takes for such feedback to translate

through the beam is quite vast compared to the much more subtle alteration to the speed of light caused by the Coulomb Effects generated by the negative charge in the aircraft integument at ranges of up to hundreds of miles. It is difficult to estimate by what degree light would be slowed by these effects, but I propose that it may fall within our ability to detect it provided that the right type of electromagnetism is utilized.

It is only by way of the ability to measure remarkably subtle changes to the velocity of light between the primary and secondary aperture that any such effect can be detected. The space between the primary and secondary aperture must be an absolute atmospheric vacuum.

Although these effects would be present in conventional electromagnetism, they would be more pronounced in structured electromagnetism in which electrons/photons are, insofar as is possible, devoid of magnetic moment and packed as closely together as possible. Although helical EM (which is extremely useful for stealthy aircraft detection in its own right,) would be counterproductive for this application, rapidly pulsed solitons would be highly useful as they would be more prone to the Coulomb Effects over great distances. Individual photons could be packed more closely together using this approach than would be permitted by the spacing between waveforms, also tending to increase the magnitude of the Coulomb Effects. Furthermore, soliton energy would be more rapidly absorbed by any stealth integument and this rapid absorption, undesirable in the context of attempts to generate RADAR returns of a conventional sort, would result in precisely the sort of ionization desirable when attempting to generate extreme-range Coulomb effects. *The velocity of light which is approaching an ionized object is infinitesimally lesser than the velocity of light approaching an object of neutral or positive charge. Through this principle, we may use a clock to detect an aircraft.*

Conclusion

We should expect that when the interval between rapidly pulsed solitons measurably decreases, it is due to this Extreme-Range Coulomb Effect and it can be taken to indicate the presence of a stealthy aircraft or other stealthy object. The success of a prototype based upon this concept would rely upon the ability to emit pulsed solitons at a rate which is greater than the frequency of microwave energy, perhaps on the order of billions of waves per second as well as the ability to ensure a consistent emission rate which ensures that any alteration to arrival time of pulses on a relative basis (arrival time at the second aperture) can be attributed to the Precision Timing-Observed Extreme-Range Coulomb Effect.